

CARIBBEAN CURIOSITIES

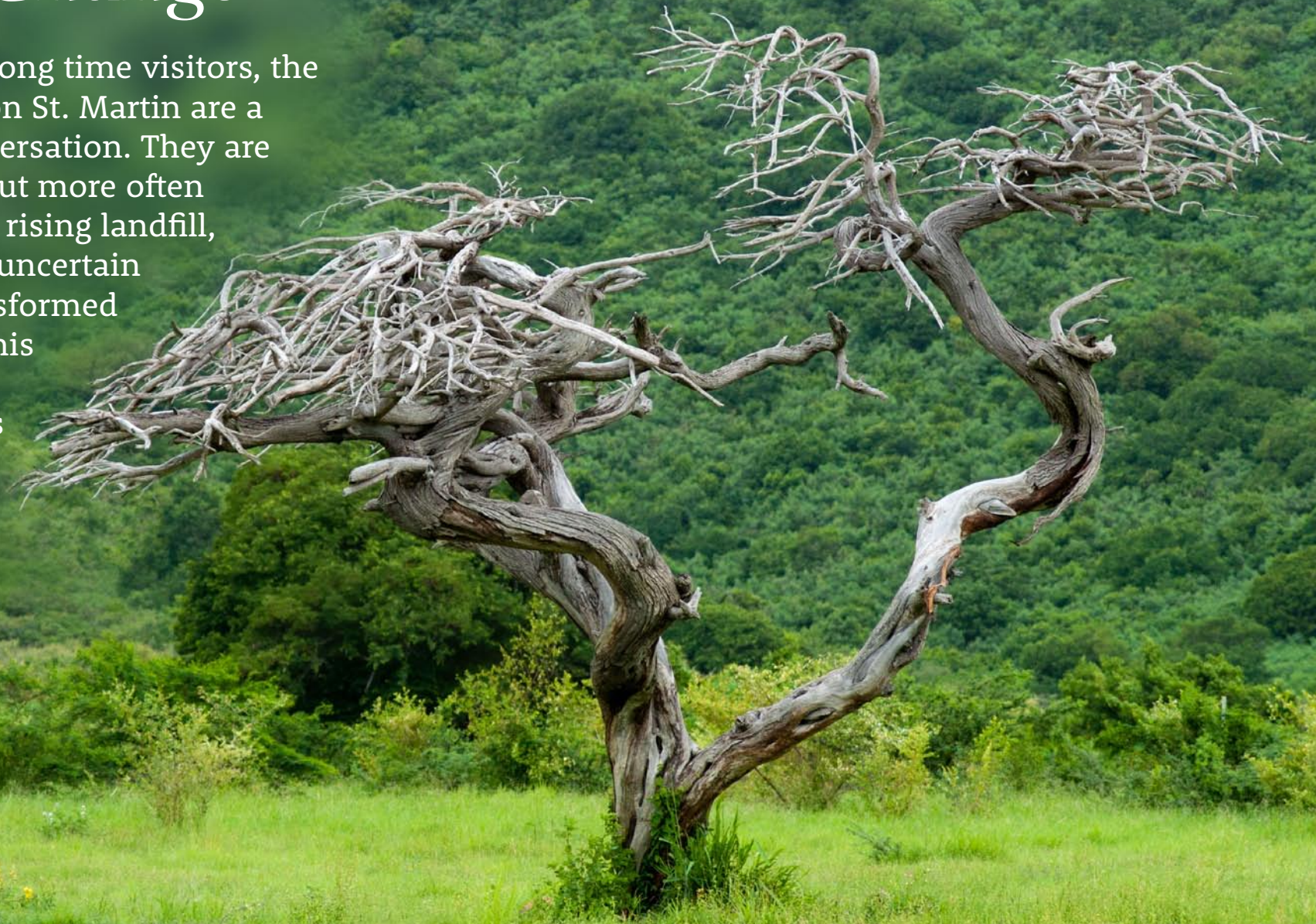
PART TWO:
ISLAND ^{OF} CHANGE

By Mark Yokoyama



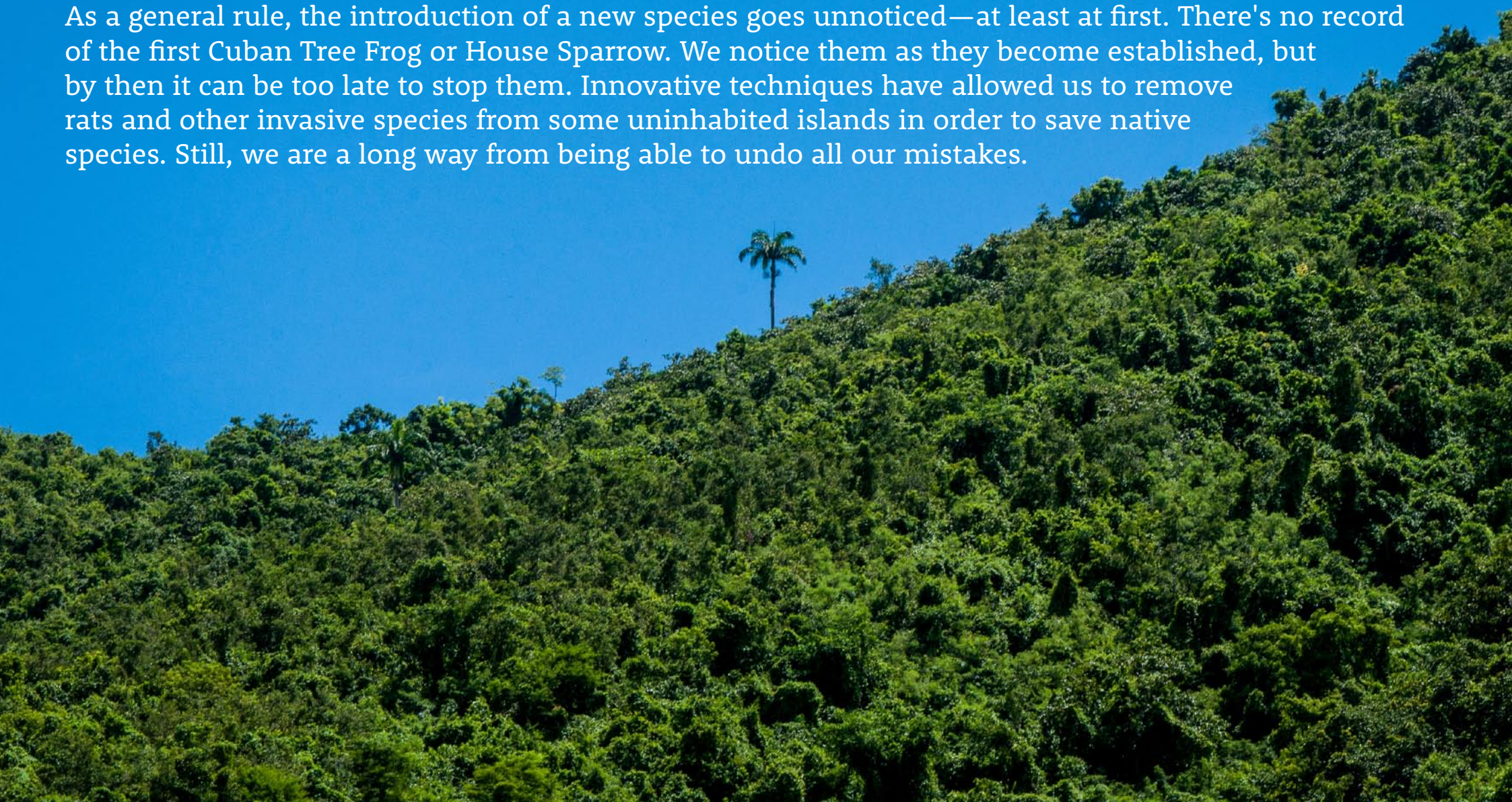
Island of Change

For St. Martiners and long time visitors, the changes taking place on St. Martin are a common topic of conversation. They are praised on occasion, but more often seen as problematic: a rising landfill, new developments of uncertain value, or beaches transformed into parking spaces. This skepticism is not surprising—few places have changed so much or so quickly as St. Martin has in the last half-century.



The changes in the island's natural heritage have been happening much longer, and are often less visible. Although our mental image of introduced species may be the rat swimming to shore from a European ship, Amerindians colonized these islands centuries before. Although they left no written records, the ecological evidence suggests that they were transporting plants and animals—and transforming the Caribbean—long before Columbus arrived.

As a general rule, the introduction of a new species goes unnoticed—at least at first. There's no record of the first Cuban Tree Frog or House Sparrow. We notice them as they become established, but by then it can be too late to stop them. Innovative techniques have allowed us to remove rats and other invasive species from some uninhabited islands in order to save native species. Still, we are a long way from being able to undo all our mistakes.



For everything new on St. Martin—like strange, shovel-headed worms crawling around after a rain—we now miss things, too. The elegant Leeward Island Racer snake that once hunted lizards here and the Lesser Antillean Iguana are both gone. Some invaders we see all around us, like the Green Iguana. Many others are tiny insects that few have ever seen at all. The impact they have on the island can be surprising: a tiny beetle can fell a towering palm.

On this island of change, it can be rewarding to spend a quiet moment to consider the life around us—the bird on the doorstep, the call in the night, the spider minding its web. Where did it come from? How did it arrive, and when? How is it changing the island at this very moment in some invisible way?



Monkey Business

Invasive species have a long track record of disrupting native plants and animals, particularly on islands. As Vervet Monkey populations increase, what can we expect on St. Martin?

Although they are resilient enough to survive hurricanes and droughts, island ecosystems are delicate in some ways. Invasive species, in particular, have the potential to cause destruction and disaster when they encounter islands where they have no predators and little competition. Since the year 1500, 80% of all animal extinctions have happened on islands.





St. Martin is not immune to this phenomenon. It lost three species due to the introduction of the mongoose: two lizards and one snake. Rats and mongoose are perhaps our most destructive invasive species. Both are omnivorous mammals—smart, fast and voracious. The raccoon is another, but we know less about how it impacts islands.

In recent years, the Vervet Monkey has been increasing its population on St. Martin. Agile and intelligent, it undoubtedly eats a wide variety of native plants and animals. Originally from Africa, this monkey was brought to St. Kitts and Barbados in the 1600s. The wild population of Vervets on St. Martin is much more recent, perhaps only a few decades old.

A look at St. Kitts may tell us a bit about one possible future on St. Martin. Monkeys are very common on the island in both the mountain forest and the dry coastal scrub. Until recently, large areas of sugarcane cultivation created a buffer between mountain-dwelling monkeys and urban areas. With the end of that industry, emboldened monkeys have spread nearly throughout the island.

In the lush, beautiful forests of St. Kitts, many animals are strangely absent. Snails, so abundant on the wet slopes of Saba and even in the dry forest of St. Martin, are almost entirely absent. One might see a few lizards per day on St. Kitts' Mount Liamuiga, compared to a few lizards per tree on St. Martin's Pic Paradis. There isn't enough research to prove that monkeys are responsible, but their presence is one of the few major differences between St. Kitts and other islands in the Lesser Antilles.

Once a rarely seen novelty, Vervet Monkeys are more common on St. Martin every year, and seem to be on the verge of becoming an island-wide menace. Will lizards found only on St. Martin be driven to extinction? Will the island's forest and scrub fill with monkeys and empty of everything else? Without action, we will find out very soon.



An Early Introduction

One of the challenges of studying the ecology of an island is uncertainty about past events. Be it twenty years, two hundred years, or two million years ago, it is impossible to go back in time to witness the first arrival of a plant or animal species. Instead, our understanding is informed by whatever historical and biological data is available.


When it comes to the Red-footed Tortoise in the Lesser Antilles, there are a few possibilities. It could have arrived on its own, floating on a raft of vegetation to each island. It could have been brought by Amerindians from South America and introduced to the islands they visited. It even could have been introduced during the colonial era or the modern era.



On St. Martin, we can probably rule out the last possibility. In 1658, Charles de Rochefort published an account of his time in the Caribbean which mentioned the presence of tortoises in the forest on St. Martin. Since St. Martin was only settled in the 1620s, it seems likely that tortoises were living on the island before it was colonized by Europeans.

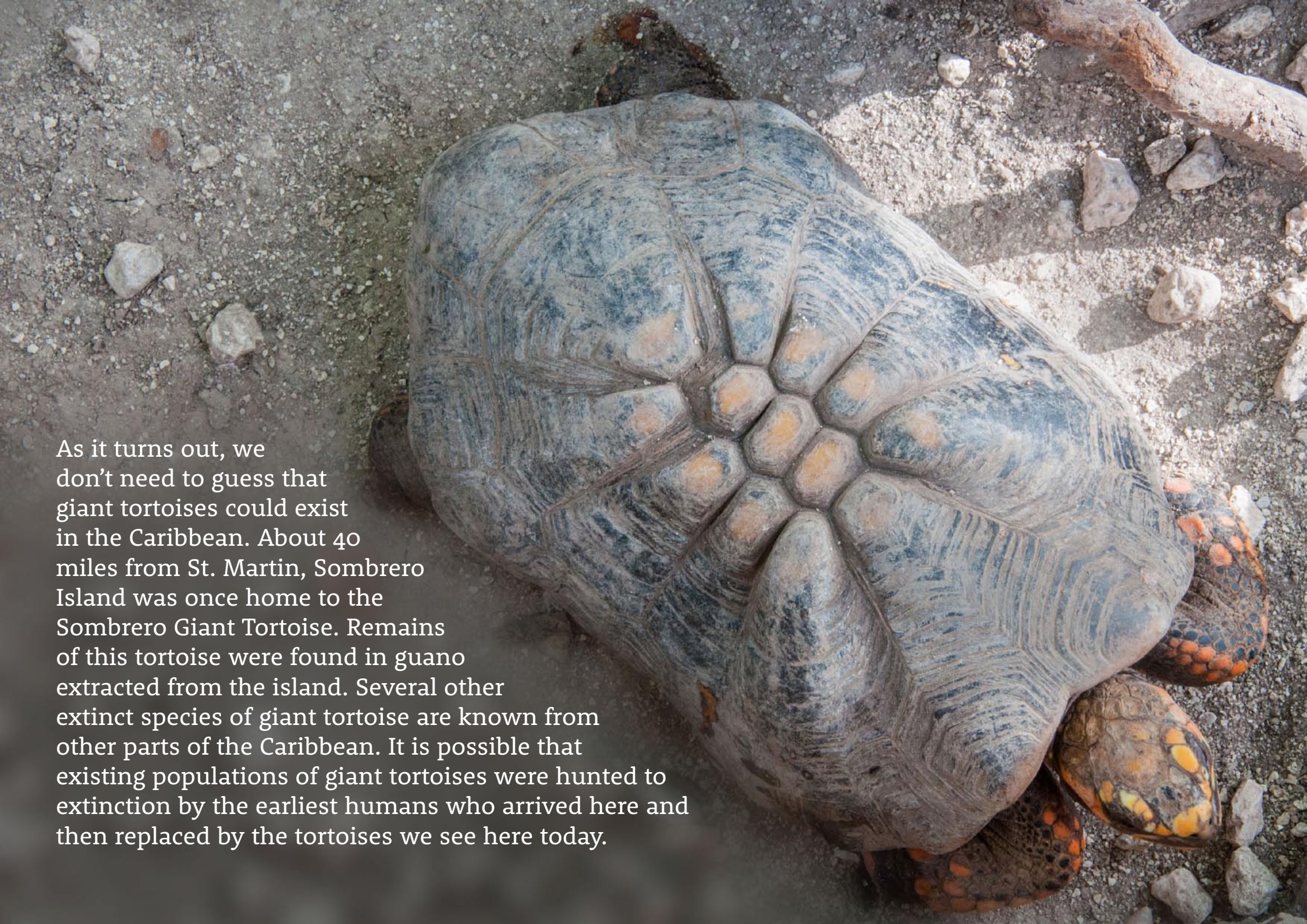
Was the Red-footed Tortoise brought to these islands by Amerindian people? Many believe this is the most likely scenario. The Arawak and Carib people migrated from northern South America—where the Red-footed Tortoise is a native species—to the Lesser Antilles. It would have been very practical to bring the tortoises with them and release them, creating a renewable food supply.





There are other reasons to believe the tortoise did not arrive on its own. Most of the reptiles that colonized the Lesser Antilles by their own means diverged into different species on each island or group of islands. The Red-footed Tortoise seems essentially the same throughout the Caribbean. This suggests it arrived recently.

Also, we know what can happen with tortoises on islands: they become giants, like the tortoises of the Seychelles and Galápagos. It seems reasonable to guess that if these tortoises had colonized Caribbean islands millions of years ago, they would have had ample time to become giants on Caribbean islands, too.

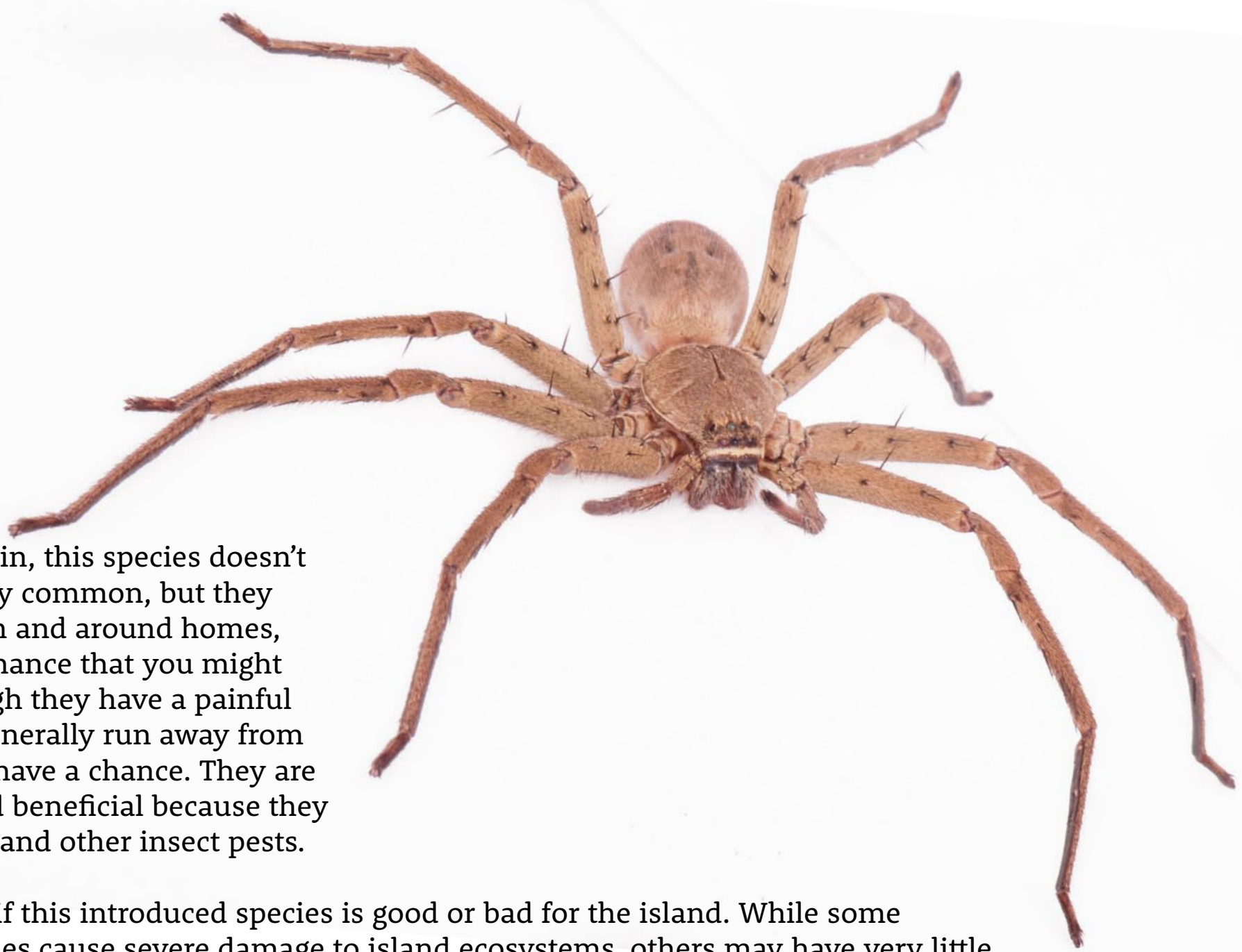
A large tortoise, likely a Galapagos tortoise, is shown from a top-down perspective, resting on a sandy and rocky ground. The tortoise's shell is a mix of dark brown and grey, with distinct orange-brown markings on the scutes. Its head and front legs are visible on the right side of the frame, showing similar orange-brown patterns. The background consists of sand, small grey rocks, and a piece of light-colored driftwood in the upper right corner.

As it turns out, we don't need to guess that giant tortoises could exist in the Caribbean. About 40 miles from St. Martin, Sombrero Island was once home to the Sombrero Giant Tortoise. Remains of this tortoise were found in guano extracted from the island. Several other extinct species of giant tortoise are known from other parts of the Caribbean. It is possible that existing populations of giant tortoises were hunted to extinction by the earliest humans who arrived here and then replaced by the tortoises we see here today.



The Huntsman

The Pantropical Huntsman Spider is huge. It's smaller than your hand, but it's bigger than any other spider on the island except our tarantula. It probably came from Asia, but humans have brought it to tropical regions around the world. It is sometimes called the Banana Spider because it has a habit of stowing away in bunches of bananas.



Here on St. Martin, this species doesn't seem particularly common, but they do tend to live in and around homes, increasing the chance that you might see one. Although they have a painful bite, they will generally run away from humans if they have a chance. They are often considered beneficial because they eat cockroaches and other insect pests.

It is hard to say if this introduced species is good or bad for the island. While some introduced species cause severe damage to island ecosystems, others may have very little impact. Chances are, this spider mostly eats introduced cockroaches in urban areas. If that's the case, it probably is doing little to harm or compete with native species.

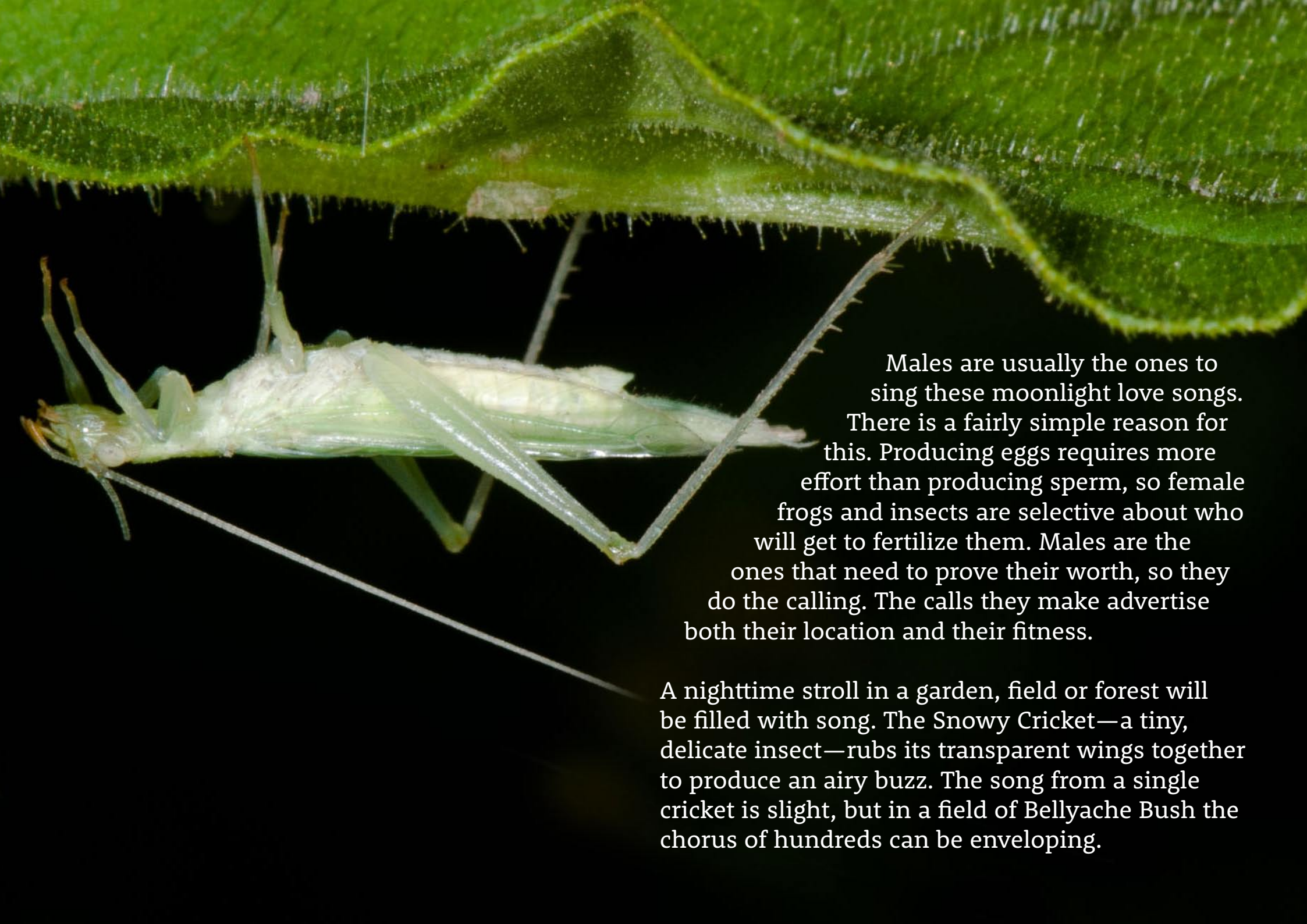
Love Songs

Love is always in the air on steamy Caribbean nights, and you can hear the songs that prove it. A gentle hum, a sawing drone, or a piercing chirp, these calls broadcast into the darkness, pleading for partnership.

A nocturnal lifestyle has certain advantages here on St. Martin, especially if you are very small. Birds and lizards are dangerous predators to the insects and tiny frogs living on the island. One way to escape their prying eyes and hungry mouths is to hide during the day. Many of the nocturnal critters on St. Martin do just that. Johnstone's Whistling Frog often waits out the daylight in the dampness beneath stones or under dead leaves. Many crickets and katydids hide in plain sight, camouflaged to look like the plants they live on.

Conducting all of one's business at night does pose certain difficulties when it comes to love. When predators can't see you, neither can your prospective mate. Although there are numerous ways to find a partner in the dark, sound is one of the most common methods.





Males are usually the ones to sing these moonlight love songs. There is a fairly simple reason for this. Producing eggs requires more effort than producing sperm, so female frogs and insects are selective about who will get to fertilize them. Males are the ones that need to prove their worth, so they do the calling. The calls they make advertise both their location and their fitness.

A nighttime stroll in a garden, field or forest will be filled with song. The Snowy Cricket—a tiny, delicate insect—rubs its transparent wings together to produce an airy buzz. The song from a single cricket is slight, but in a field of Bellyache Bush the chorus of hundreds can be enveloping.



The Money Bug prefers to call from tall grasses. It has a file on one forewing and a scraper on the other. Its song is determined by the shape of these sound-making features and how it plays them. It chooses loud and grating, in a near-continuous drone broken by occasional momentary silences.

The island's most famous nighttime singer is Johnstone's Whistling Frog. This tiny frog fills up a huge air sac in its throat to create its trademark whistle. It is surprisingly loud, and many sleepless people have discovered how hard it is to find its source. A chorus of whistling frogs on a rainy night may be the most typical sound of the Caribbean.

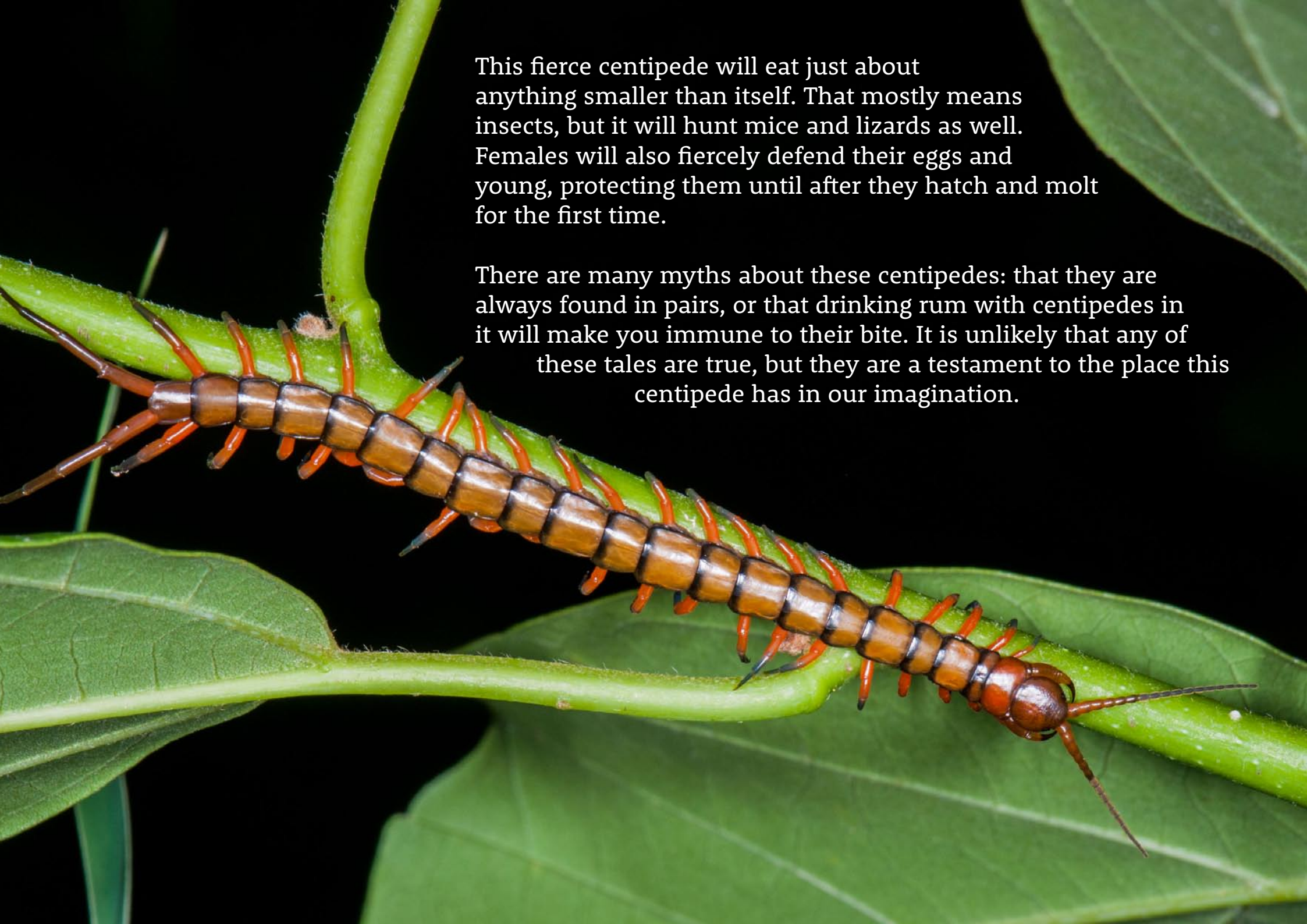


Terror on Many Legs

Many of the dangerous-looking animals on St. Martin are pretty harmless. The Hairy Tarantula is mild-mannered, and the Whip Spider doesn't bite at all. However, the Vietnamese Giant Centipede is feared by many for its painful bite, and it does seem to be more aggressive than most of our tough-looking critters.



Originally from Asia, this species has become established in many tropical areas, including the Caribbean. The region also has its own native giant centipedes, but the Vietnamese Giant Centipede seems to be the most common one in the areas where people live.

A close-up photograph of a centipede, likely a Scolopendromorpha, crawling on a green plant stem. The centipede has a segmented body with alternating brown and black segments, and numerous orange legs. It is positioned diagonally across the frame, with its head on the right and tail on the left. The background is dark, and there are green leaves visible.

This fierce centipede will eat just about anything smaller than itself. That mostly means insects, but it will hunt mice and lizards as well. Females will also fiercely defend their eggs and young, protecting them until after they hatch and molt for the first time.

There are many myths about these centipedes: that they are always found in pairs, or that drinking rum with centipedes in it will make you immune to their bite. It is unlikely that any of these tales are true, but they are a testament to the place this centipede has in our imagination.

A Giant Problem?

Giant can be a relative term. The Giant African Land Snail is definitely a giant among land snails, even if it is only a few inches long. It also manages to be one of the world's worst invasive species, but is it a giant problem on St. Martin?



This snail has certainly become a big problem in many places. Originally from Africa, it has been spread by humans throughout much of the world's tropics. Once it becomes established, it can transform its new home in a variety of ways, endangering local ecosystems, agriculture and even human health.

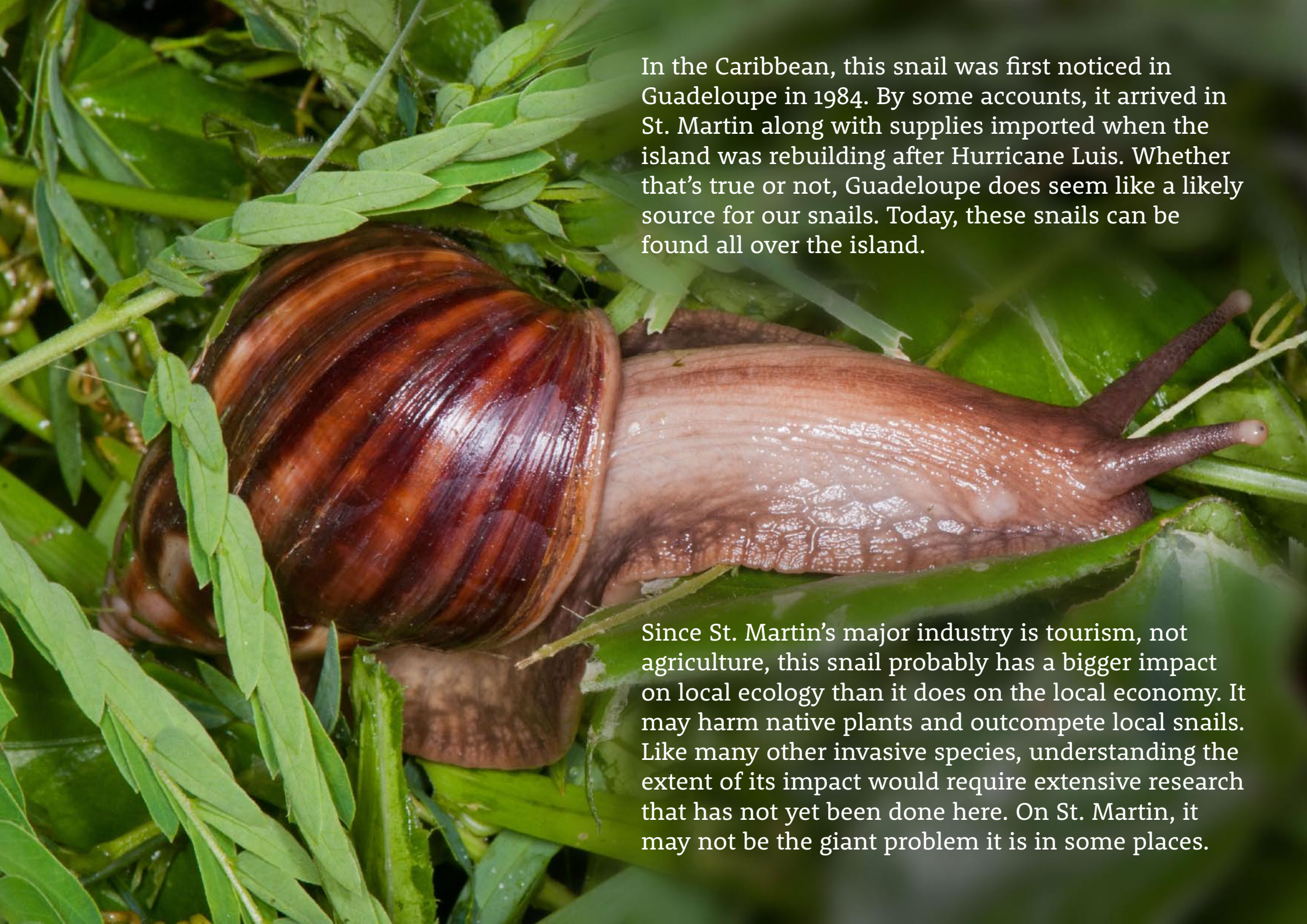
The Giant African Land Snail is hermaphroditic, so every single one is able to lay eggs. They do so 100-400 eggs at a time, up to 1200 eggs per year. Once they are introduced, they are quick to take over. Getting rid of them is hard. In Florida, an infestation was eradicated in the early 1970s. The effort involved killing 18,000 snails and cost over \$4 million in today's dollars.



These snails are known to eat over 500 different kinds of plants, including many agricultural crops. They eat leaves, fruits and roots, scraping away at them with 80,000 tiny teeth on their file-like radula. They can also transmit diseases to plants, including diseases impacting crops like cocoa, tangerines and eggplants.



In some parts of the world, these snails are also responsible for spreading diseases to other animals and even humans, including some caused by nematode worms that live in the snails. Luckily, humans usually catch these diseases by eating raw or undercooked Giant African Land Snails, something that most of us will have no problem avoiding.

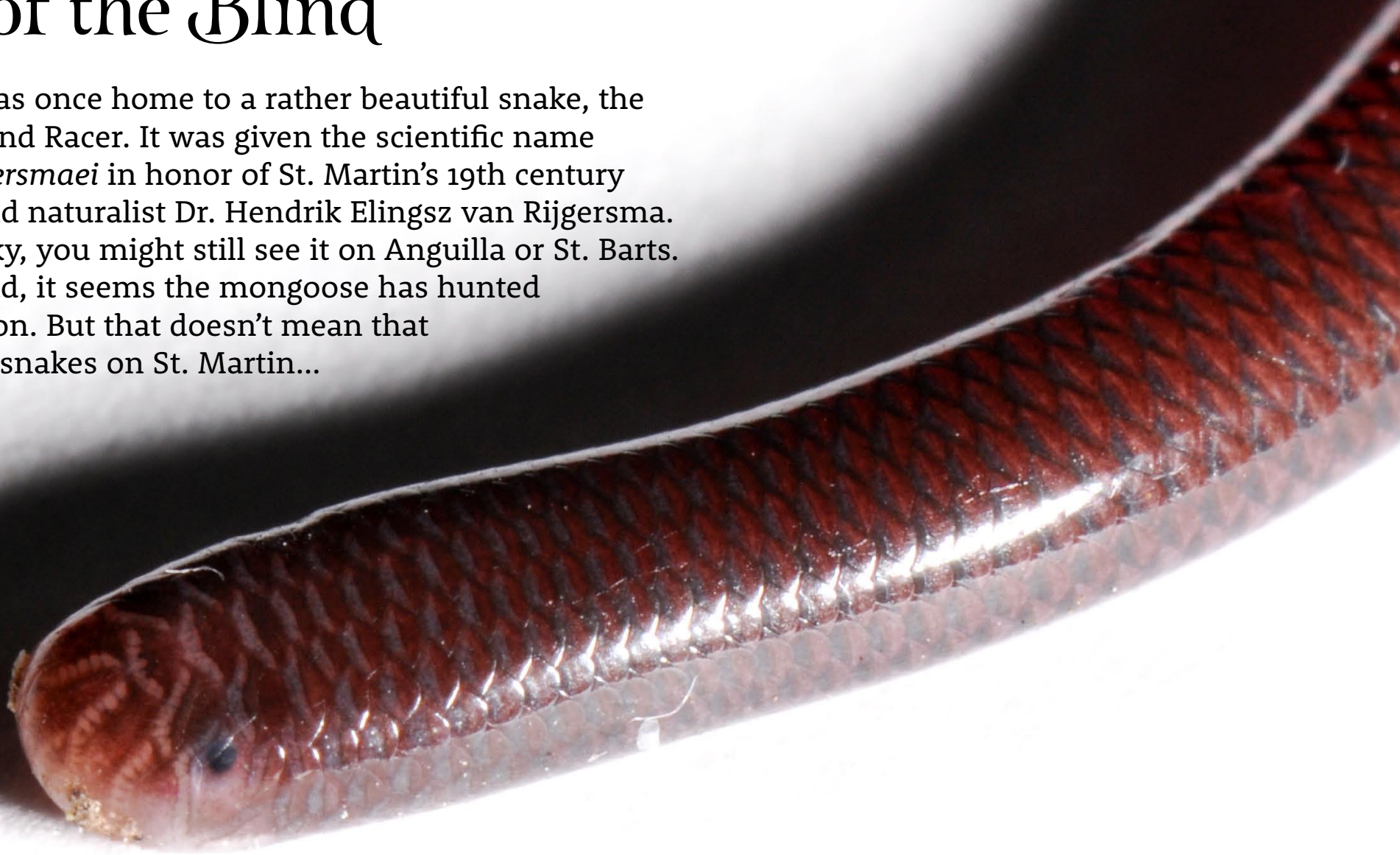
A close-up photograph of a large snail, likely a Giant African Land Snail, moving through dense green foliage. The snail's shell is dark brown with prominent, lighter brown vertical stripes. Its body is a pale pinkish-brown color, and its two long eye stalks are extended forward. The background is filled with various green leaves and stems, some of which show signs of being eaten.

In the Caribbean, this snail was first noticed in Guadeloupe in 1984. By some accounts, it arrived in St. Martin along with supplies imported when the island was rebuilding after Hurricane Luis. Whether that's true or not, Guadeloupe does seem like a likely source for our snails. Today, these snails can be found all over the island.

Since St. Martin's major industry is tourism, not agriculture, this snail probably has a bigger impact on local ecology than it does on the local economy. It may harm native plants and outcompete local snails. Like many other invasive species, understanding the extent of its impact would require extensive research that has not yet been done here. On St. Martin, it may not be the giant problem it is in some places.

Land of the Blind

St. Martin was once home to a rather beautiful snake, the Leeward Island Racer. It was given the scientific name *Alsophis rijgersmaei* in honor of St. Martin's 19th century physician and naturalist Dr. Hendrik Elingsz van Rijgersma. If you're lucky, you might still see it on Anguilla or St. Barts. On this island, it seems the mongoose has hunted it to extinction. But that doesn't mean that there are no snakes on St. Martin...



The one snake that is definitely living on St. Martin is odd, but it's not surprising to find it here. It is known by many names: Brahminy Blind Snake because it is thought to come from India, Flowerpot Blind Snake because it often travels in potted plants, and Island Blind Snake because it has been so successful in colonizing islands.

As you may have guessed, this snake is blind. It has eyes, but they are feeble and covered in scales. They can sense light and dark, but probably not much more than that. This is not a problem for them because they live underground, eating ants of all ages—eggs, larvae, pupae and adults—straight from the nest.



If you've never seen one, that's probably because they're rarely out and about. They're also very small—just a few inches long and thinner than a chopstick. There's no need to fear the blind snake, because its mouth is far too small to bite you.

How did this strange snake get here? Probably in potted plants or trees, the same way it has hitchhiked its way around the globe. This species is also parthenogenetic. This means they are all female and can reproduce entirely on their own. They give birth to genetically identical offspring. This is a serious advantage when colonizing an island, and surely a big part of their success in establishing themselves around the world.



Could there be more to St. Martin than a tale of two snakes? It is possible. Native blind snakes are now known from many nearby islands. If there's one on St. Martin, it could have gone unnoticed. Today, it could be mistaken for the introduced Brahminy Blind Snake. If one is found—and several have been found in the Caribbean in recent years—it would likely be a species new to science.



This ebook was created by Mark Yokoyama based on articles published in *The Daily Herald's* Weekender section, which is edited by Lisa Davis Burnett. Each article highlights a species featured at Amuseum Naturalis, St. Martin's first natural history museum. Amuseum Naturalis is a free, public pop-up museum of the natural history of St. Martin and the Caribbean, created by Les Fruits de Mer and made possible by the generous sponsorship of Delta Petroleum. Visit the Amuseum for free on Tuesdays and Thursdays from 4-8pm at 96 Boulevard de Grand Case in Grand Case or online at <http://amuseumnaturalis.com>.